

Policy & Procedure (P&P)

Policy Title :

INVESTIGATION OF TRANSFUSION REACTION

Department	Index No.	Scope
Laboratory & Blood Bank	LAB-092	Blood Bank Staff
Issue Date	Revision NO	Effective Date
24/10/1432	2	23/07/1440
Review Due Date	Related Standard NO.	Page Number#
23/07/1442	CBAHI (LB .70) (PC .25)	4

01. Policy:

All reported transfusion reactions must be investigated promptly and thoroughly to detect immune mediated hemolytic transfusion reaction. This is essential to differentiate other causes of reaction e.g. Febrile Non-Hemolytic Transfusion Reaction (FNHTR), allergic reaction, Transfusion Related Acute Lung Injury (TRALI), Metabolic Reactions and others.

02. Definition:

N/A

03. Purpose :

To give guidelines to all nurse staff and Blood Bank Staff about how to investigate the cause of an apparent reaction to blood and blood products.

04. Procedure :

04.1. General Instructions to nursing personnel.

- 04.1.1. If a transfusion reaction is suspected, the transfusion should be stopped to limit the volume of blood infused.
- 04.1.2. All labels, forms and patient identification should be checked to detect clerical error.
- 04.1.3. An intravenous line should be maintained with normal saline.

- 04.1.4. The transfusion service and patient's physician should be notified immediately. They should determine the possibility of serious transfusion reactions as Acute Hemolytic Transfusion Reaction "AHTR", Sepsis, Anaphylaxis and TRALI for proper medical intervention.
- 04.1.5. Record the symptoms, vital signs, and other required information on the appropriate form.
- 04.1.6. Send the following to the blood bank together with the completed transfusion reaction form.
 - 04.1.6.1. An immediate two post transfusion samples, one EDTA tube and another serum tube (red top). Both tubes should be labeled with patient's name and unique identification number. Care should be taken to avoid mechanical hemolysis.
 - 04.1.6.2. All blood bags and attached administration sets.
 - 04.1.6.3. The first post transfusion reaction urine specimen should be sent to the laboratory for testing of free hemoglobin.

04.2. Initial Transfusion Reaction Work-up.

- 04.2.1. After notification of a transfusion reaction by the nursing staff, the technologists should assure that all required samples mentioned before together with transfusion reaction report form are sent to blood bank.
- 04.2.2. the patient's paper work and pre-transfusion sample. A clerical check must be made on blood bag, request form, cross-match label, and the pre and post transfusion samples. If an error is detected at this phase, immediately notify the blood bank physician.
- 04.2.3. Compare the post-transfusion serum to the pre-transfusion sample for evidence of hemolysis or icterus. Examine blood bag for hemolysis.
- 04.2.4. Perform a direct antiglobulin test (DAT) on both pre-transfusion and post transfusion EDTA sample. If transfused incompatible cells have been coated with antibody but not immediately destroyed, the post reaction specimen will give positive DAT. If transfused cells have been rapidly destroyed, DAT will give negative result especially if specimen is drawn several hours later. Non-immune hemolysis, e.g. from thermal damage or mechanical trauma, causes hemoglobinuria but not a positive DAT.
- 04.2.5. Record all results on blood bank section of the transfusion reaction form. Inform the blood bank physician with the results. The physician will indicate if an extended work-up is necessary.

04.2.6. If a clerical error is detected, or the DAT is positive on the post-transfusion sample or there is evidence of hemolysis or icterus, an extended work-up is usually necessary.

04.3. Extended Work-up of a Transfusion Reaction:

04.3.1. Repeat the ABO and Rh blood group on the pre-transfusion sample, the post-transfusion sample and all transfused donor units.

04.3.2. Repeat the antibody screen on the pre and post transfusion samples.

04.3.3. Repeat the cross-match procedure with all transfused units and the pre and post transfusion samples.

04.3.4. Perform antibody identification procedure if antibody screening test is positive.

04.3.5. In addition, antibody screening on the donor units may also be necessary if no other cause for an incompatibility can be found.

04.3.6. A bilirubin determination should be performed 6 hours post transfusion together with serum haptoglobin as markers for hemolysis.

04.3.7. If bacterial contamination is suspected, a gram stain and bacterial culture for blood bags should be done.

04.3.8. The results of the extended work up should be reviewed by the blood bank director as soon as they are completed.

04.3.9. A completed report of the results of the transfusion reaction work-up should be prepared, signed by the blood bank director and placed in the patient's chart. A copy of this report should be kept in a special file in the blood bank.

The transfusion reaction reports are reviewed by the transfusion committee

06. RESPONSIBILITY

- 06.1. Blood Bank Staff of Al-Qunfudah General Hospital.
- 06.2. Nurses
- 06.3. Medical staff

07. EQUIPMENT AND FORMS::

- 07.1. Blood transfusion reaction

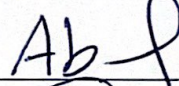
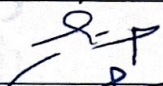
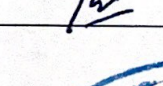
08. Attachment :

N/A

09. Reference

09.1. Technical Manual of the American Association of Blood Banks.

Preparation , Reviewing & Approval Box

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Investigation of Acute Transfusion Reactions

Name:	Health Care No:	Nationality:
Age:	Ward & Bed No:	Sex:
Date:	Consultant:	Diagnosis:

CONTACT THE LABORATORY OR THE ON-CALL HEMATOLOGIST.

SEND THIS FORM+SAMPLE IMMEDIATELY TO THE LABORATORY.

Essential sample are:

- Clotted sample+ EDTA from patient
- First urine passed
- Bags from all units transfused
- Current unit attached to giving set and sealed with rubber stopper to prevent leakage
- Sample on Na citrate for coagulation

If a transfusion reaction is thought to be serious enough to investigate it should be investigated fully and immediately. It is unnecessary to investigate simple febrile reactions. If in doubt contact the transfusion registrar.

Previous transfusion	YES		NO	
	☐		☐	
Previous pregnancies				
	☐		☐	

Type of Components	P.RBC	FFP	Platelets	
Is this unit the	1 st	2 nd	3 rd	4 th
Interval between commencement of transfusion of current unite and time reaction first note	<15 min.	<1 hr	1-3 hr	After completion

Symptoms/Signs		YES		NO	
fever>>1°C above baseline		☐		☐	
Chills		☐		☐	
Rigor		☐		☐	
Itching/Rash		☐		☐	
Back Pain		☐		☐	
Chest Pain/ Discomfort		☐		☐	
Dyspnea		☐		☐	
Heamoglobinuria		☐		☐	
Restlessness		☐		☐	
Hypotension		☐		☐	
Collapse		☐		☐	
Others		☐		☐	

Investigation of Acute Transfusion Reactions

Name:	Health Care No:	Nationality:
Age:	Ward & Bed No:	Sex:
Date:	Consultant:	Diagnosis:

- | | Correct | Incorrect |
|---|--------------------------|--------------------------|
| - Patient label (<i>recipient</i>) | ☐ | ☐ |
| - Request Form label | ☐ | ☐ |
| - Blood unit label (<i>matching request form</i>) | ☐ | ☐ |
| - Visual inspection of the blood unit (<i>describe</i>) | | |

-
- Visual inspection of the patient's post transfusion sample (*describe*)
-

- Pre-transfusion Sample:

ABO and Rh Grouping: _____
 Antibody Screen: _____
 Cross-Matching: _____

- Post-transfusion Sample:

ABO and Rh Grouping: _____
 Antibody Screen: _____
 Cross-Matching: _____

- Direct Coombs Test:

- urine: (*first post transfusion voided sample*)

Haemoglobinuria

YES ☐ NO ☐

If YES what is the severity: _____

- culture of all transfused unite bags and tubing:
-

- conclusion:
-

NB: patient needs to be followed with CBC, electrolytes, LDH, bilirubin, ECG, Coagulation and 24 hr urine.

Blood Bank Technician:

Name: _____

Signature: _____

Blood Bank physician:

Name: _____

Signature: _____

KINGDOM OF SAUDI ARABIA

وزارة الصحة
Ministry of Health

Hospital: _____ مستشفى: _____

Region: _____ المنطقة/المحافظة: _____

Dept./Unit: _____ القسم/الوحدة: _____

MRN: _____ رقم الملف الطبي: _____

Name: _____ الاسم: _____

Nationality: _____ الجنسية: _____

Age: _____ سنة _____ شهر _____ يوم _____ العمر: _____
Years Months Days

Date of Birth: _____ / _____ / 14 H _____ / _____ / 20 تاريخ الميلاد: _____
Gender: ☐ Male ☐ Female الجنس: _____

BLOOD TRANSFUSION REACTION FORM

Date Requested: _____ / _____ / _____ Time Requested: _____

Ordering Physician: _____ Pager Number: _____

Type of Product: _____ Unit Number: _____

Clerical checks performed by two staff before transfusion YES / NO, If Yes names and ID

1. Name: _____ ID: _____ 2. Name: _____ ID: _____

Date transfusion started: _____ Time transfusion started: _____

Time transfusion stopped: _____ Amount Transfused: _____

Date apparent reaction started: _____ Time apparent reaction started: _____

Time and date reported to blood bank: _____

Status	BP	Pulse rate	Temperature	Respiratory rate
Pre transfusion				
Post transfusion				

CLINICAL SYMPTOMS:

- ☐ Fever ☐ Chills ☐ Nausea & Vomiting ☐ Hives / Itching ☐ Lower back pain
☐ Skin Pallor ☐ Chest pain ☐ Anxiety ☐ Headache ☐ Dark urine
☐ Bleeding from wound or IV site ☐ Others (specify below) _____

MEICATIONS GIVEN AFTER TRANSFUSION REACTION:

JOB NUMBER: _____

NURSE NAME: _____ Stamp&Signature: _____ Date: _____ / _____ / _____

PHYSICIAN NAME: _____ Stamp&Signature: _____ Date: _____ / _____ / _____

JOB NUMBER: _____

RECEIVED IN BLOOD BANK BY: _____ Stamp&Signature: _____ Date: _____ / _____ / _____



Blood bank side

Investigations of Acute Transfusion Reactions

Unit No:	Component: PRBCs ☐ FFP ☐ Platelets ☐ CRYO ☐	Blood group
Name:	Health Care No:	Nationality:
Age:	Ward & Bed No:	Sex:
Date:	Consultant:	Diagnosis:

1- Reception:			
Received by	Name:	Date:	Time:
Blood and samples received	☐ form completed ☐ unit bag ☐ Correct labels	☐ EDTA + PLAIN TUBE ☐ CBC sample ☐ chemistry sample ☐ urine sample	
COMMENT			

2- Visual inspection :				
Serum pre-transfusion	☐ Hemolysis	☐ jaundice	☐ clear	☐ other (specify)
Serum post transfusion	☐ Hemolysis	☐ jaundice	☐ clear	☐ other (specify)
Urine	☐ Bloody	☐ turbid	☐ clear	☐ other (specify)
Unit bag	☐ Clotted	☐ particles	☐ clear	☐ other (specify)

3- Confirmation of ABO- RH group Result :				
		ABO-RH GROUP	DISCREPANCY	COMMENTS
Recipient	PRE-transfusion			
	POST-transfusion			
DONOR	Segment			

4- Re- Confirmation of CROSSMATCHING Result:				
	AHG	Compatibility	DISCREPANCY	COMMENTS
Recipient serum + donor cells	PRE-transfusion			
Recipient serum + donor cells	POST-transfusion			

5- ANTIBODY SCREENING Result :				
		RESULT	DISCREPANCY	IDENTIFICATION IF POSITIVE
Recipient	PRE-transfusion			
	POST-transfusion			
DONOR	PRE-transfusion			
	POST-transfusion			

6- DIRECT COOMBS DCT Result:				
	AHG	RESULT	DISCREPANCY	COMMENTS
Recipient	PRE-transfusion			
	POST-transfusion			

7- URINE		
HEMOGLOBINURIA	YES ☐	NO ☐

8- BLOOD CULTURE FROM THE BAG :		
DATE	RESULT	COMMENT

CONCLUSION :

PERFORMED BY		APPROVED BY	
Name:		Name:	
SIGNATURE:		SIGNATURE:	
Date:		Date:	